Mathematics 3820H – Mathematics from medieval to modern times

Trent University, Winter 2018

Assignment #3

Extracting Roots

Due on Friday, 15 February, 2019.

Read pp. 207-276 of [1] and do the following:

1. On the basis of the reading and the related material in our textbook, briefly describe the background and course of the dispute between Tartaglia and Cardano and try to assess who was in the right. *[5]*

2. State and prove the cubic formula, that is the formula for the solutions of the general cubic equation $ax^3 + bx^2 + cx + d = 0$ in terms of the coefficients a, b, c, and d. (You may assume that $a \neq 0$ and proceed in any way you like, but using modern notation and algebraic techniques is strongly recommended ...) Could you do so without too much inconvenience if you were to avoid using complex numbers? *[5]*

Reference

1. *Jerome Cardan: The life of Girolamo Cardano, of Milan, physician*, Vol. I, by Henry Morley (London, 1854), which can be found (pdf and epub) online at:
`http://books.google.ca/books?id=lskVAAAAYAAJ`